Please direct all correspondence to the undersigned attorney at the address indicated below.

Respectfully submitted,

Date: 12/21/01

Heller Ehrman White & McAuliffe LLP
1666 K Street, N.W., Suite 300
Washington, D.C. 20006-4004
Telephone: (202) 912-2000
Facsimile: (202) 912-2020

Marvin A. Motsenbocker
Attorney for Applicant
Reg. No.: 36,614

Customer No. 26633

MARKED UP COPY OF AMENDED CLAIMS

IN THE CLAIMS

21. A closed container for decontaminating sludge material via injection and removal of remedial water prepared by electrochemical activation from material in the container, the container comprising:

(a) a box that holds the sludge material;

(b) a water impermeable liner and a geotextile water permeable liner lining the interior of the box;

(c) a removable two dimensional array of injector pipes that are vertically inserted into the box to inject the remedial water;

(d) a fixed array of drain pipes horizontally positioned at the bottom of the box;

wherein the horizontal drain pipes partially dewater the material and the injector pipes inject the material with remedial water prepared by electrochemical activation.

22. The closed container of claim 21, wherein the remedial water is anodic or cathodic water prepared by electrochemical activation with use of a membrane.

23. The closed container of claim 21, wherein the injector pipes have pointed tips to facilitate their penetration of the sludge material, and the injector pipes comprise a material selected from the group consisting of plastic, plastic PVC, iron, stainless steel, metal, titanium, copper, and metal coated on at least one surface with titanium dioxide.

24. The closed container of claim 23, wherein the injector pipes comprise at least one metal and the metal acts as an electrode to make electrochemically activated water during injection of water into the sludge.

25. A method for removing microbial contaminants from a large batch of sludge that exceeds 10 cubic yards, the method comprising the steps:

(a) placing the batch into a container having a water impermeable liner and a waterpermeable liner;

(b) dewatering the batch by applying a vacuum between the water permeable and water impermeable liners;

(c) preparing oxidized water by electrochemical activation and using directly or after storing the water in the absence of light and air;

(d) injecting the oxidized water into the batch by pumping the water through pipes that are vertically inserted into the container and which extend at least two-thirds of the depth of the batch within the container; and

(e) dewatering the batch.

26. The method of claim 25, wherein the container is closed to the environment by covering the top with a plastic barrier.

27. A method for removing organic molecules from a large batch of sludge, the method comprising the steps:

(a) placing the batch into a container that comprises a water impermeable liner;

(b) dewatering the batch;

(c) preparing electrochemically activated water and using directly or after storing the water in the absence of light and air;

(d) injecting the prepared water into the batch by pumping the water through pipes that are vertically inserted into the container and which extend at least half of the depth of the batch within the container; and

(e) dewatering the batch.

28. The method of claim 27, wherein the electrochemically activated water is prepared at the container site by an electrochemical process that uses at least one sacrificial electrode and at least

one other electrode that is not sacrificial, the other non-sacrificial electrode comprising a material selected from the group consisting of platinum, titanium oxide and titanium oxinitride.

29. A method of reclaiming dredged material, comprising the steps:

(a) placing the dredged material into a container, the container comprising a water impermeable liner and at least one drain;

(b) closing the container by covering the top of the material with a plastic barrier;

(c) dewatering the material;

(d) vertically inserting injector pipes into the dewatered material;

(e) injecting remedial water into the material via the injector pipes;

(f) closing the container by covering the top of the material with a plastic barrier; and

(g) dewatering the material.

30. The method of claim 29, wherein the water impermeable liner has an excess length at its top and the excess is used as the plastic barrier in steps (b) and (f) to cover the top of the material.

31. A method as described in claim 29, wherein the container has a depth of between 3 feet and 20 feet and the injector pipes extend at least two-third of the depth of the sludge in the container.

32. The method of claim 31, wherein the container is an ISO container and the liner is a non-woven geotextile bag of thickness between 20 and 120 wgt that is held from the sides of the container by regular protuberances on the side walls.

33. A device for decontaminating wet material *in situ*, comprising:

(a) an array of injector pipes, each injector pipe being fluidically connected to a source of remedial water and wherein the injector pipes are primarily horizontal and exceed 30 feet in length;

(b) a source of remedial water, the remedial water comprising one or more active species selected from the list consisting of activated chlorine, activated hydrogen, activated oxygen and free radical wherein the active species is prepared by electrochemical activation;

(c) a dewatering liner to facilitate dewatering, the dewatering liner comprising an outer layer of water permeable woven support that faces the water impermeable liner, and an inner layer of water permeable non-woven material facing the sludge, the inner layer having a porosity that retards or blocks the movement of particles; and

(d) a pump for directly or indirectly moving the remedial water into the wet material.

34. A method of destroying an aromatic compound in a sludge, the aromatic compound having at least one electron donating aromatic group, comprising:

(a) providing electrochemically activated water wherein the water comprises a substance selected from the group consisting of a carbonate free radical, a bicarbonate free radical, bromine and sodium ions wherein the bromine ions outnumber the sodium ions, at least 1 mM sodium chloride or sodium bromide, at least 50 mg/liter of a carbonate salt, at least 500 mg/liter of a carbonate salt, at least 250 mg/liter of carbonate or bicarbonate ion, and at least 10mM concentration of a halide salt; and

(b) contacting the water from step (a) with the sludge.

35. The method of claim 34, wherein the sludge comprises clay and step (b) is carried out by injecting the water.

36. A large scale method of chemically converting a reactant comprising:

(a) providing electrochemically activated water that contains at least 250 mg/l of an ion selected from the group consisting of carbonate ion and bicarbonate ion, and wherein at least some of the ion is a free radical; and

(b) contacting the water from step (a) with the reactant.

37. The method of claim 36, wherein the reactant is in a sludge within an enclosed space and step (b) is carried out by injecting the water from step (a) into the sludge with an array of injectors.

38. A method of solubilizing and removing a toxic metal from sludge, comprising:

(a) providing ECA water;

(b) contacting the sludge with the water from step (a); and

(c) removing soluble toxic metal from the sludge by dewatering.

39. The method of claim 38, wherein the sludge comprises electric arc furnace dust.

40. The method of claim 38, wherein the ECA water is alkaline and the toxic metal is cadmium.

41. The method of claim 38, wherein the toxic metal is lead.

42. The method of claim 41, wherein the lead is in the form of ammonium lead chloride and is converted into lead sulfate and lead chloride hydroxide by the ECA water.

43. A method for treating a batch of sludge, the method comprising the steps:

(a) placing the batch into a container having sides with round protrusions extending therefrom, a water impermeable liner and a water permeable liner respectively lining the walls with the water impermeable layer facing the walls, and wherein the round protrusions hold the water permeable liner off the walls;

(b) dewatering the batch;

(c) injecting a remedial water into the batch by pumping the water through pipes that are vertically inserted into the container and which extend at least two-thirds of the depth of the batch within the container; and

(e) dewatering the batch.

44. The method of claim 43, wherein at least step (b) or step (e) is carried out by applying a vacuum between the water permeable and water impermeable liners.